INFECTION PREVENTION & CONTROL PRINCIPLES IN LABROTORY

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Ministry of Health

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DEFINITION

A MEDICAL LABORATORY or CLINICAL LABORATORY is a laboratory where tests are done on clinical specimens in order to get information about the health of a patient as pertaining to the diagnosis, treatment, and prevention of disease.

WHY IPC IN LABROTORY

Laboratories dealing with infectious materials are required to follow certain Infection Control Guidelines in order to:

- Minimize the risk of laboratory-acquired infections
- Promote a safe environment for all personnel in the laboratory and elsew here

BIOLOGICAL SAFETY CABINET

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Setting Infection Control Guidelines to prevent and control infections by using

Biosafety Cabinet

BIOLOGICAL SAFETY CABIENT

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Biological Safety Cabinets (**BSC - CLASS II-B**) dedicated for aerosols generating procedures are well maintained, tested and certified at least annually.

BIOLOGICAL SAFETY CABINET

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is **A VENTILATED** enclosure offering **PROTECTION** to the user, the product and the environment from **AEROSOLS** arising from the handling of potentially **HAZARDOUS MICRO-ORGANISMS**. The continuous airflow is discharged to the atmosphere via a **HEPA FILTER**.

BIOLOGICAL SAFETY CABINET

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AIRBORNE PARTICULATE CONTAMINATION is extinguished from the Class 2 Safety Cabinet via internal airflow and filtration systems. Inflow air is drawn underneath the main work surface through the open front aperture of the biological cabinet and is passed through a down flow HEPA filter into the main workspace

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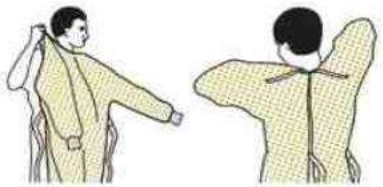
WEARING PPE TO PROTECT YOUR SELF IN SIDE THE LABROTORY

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist

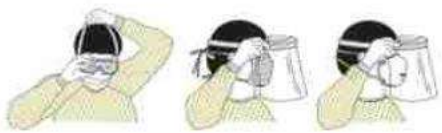


2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

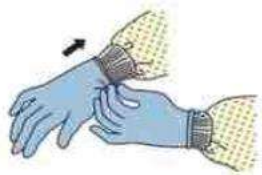
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

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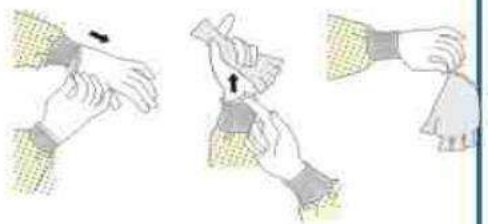
SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)

Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.

1. GLOVES

- Outside of gloves is contaminated!
- Grasp outside of glove with opposite gloved hand; peel off
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist
- Peel glove off over first glove!
- Discard gloves in waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield is contaminated!
- To remove, handle by head band or ear pieces
- Place in designated receptacle for reprocessing or in waste container

3. GOWN

- Gown front and sleeves are contaminated!
- Unfasten ties
- Pull away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- Grasp bottom, then top ties or elastics and remove
- Discard in waste container

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

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HANDLING/DISPOSAL OF CONTAMINATED ITEM

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NEEDLES/ SHARPS :

a. Dispose used sharp items into an approved puncture-resistant container immediately after use, at the point of use, or as close to point of use, as possible.

b. Do not place used sharp items on any environmental surface.

HANDLING/DISPOSAL OF CONTAMINATED ITEMS

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- Do not **RECAP** or manipulate needles using both hands because this increases the risk of injury. If recapping or manipulating the needle is deemed essential, then use either
- one-hand “scoop” technique or a mechanical device designed to hold the needle sheath.

PUNCTURE-RESISTANT CONTAINER FOR SHARPS

ONE HAND TECHNIQUE

Post injury / exposure protocol

- ✓ Don't PANIC !!!
- ✓ Don't squeeze the injured site
- ✓ Wash with soap and water immediately
- ✓ Report to the casualty & provide,

(i) Full history of injury or exposure

(ii) History of Hepatitis B immunization

(iii) Blood for testing

BLOOD /BODY FLUIDS EXPOSURES

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CLEANING SPILLS OF BLOOD AND BODY FLUIDS

HANDLING/DISPOSAL OF CONTAMINATED ITEMS

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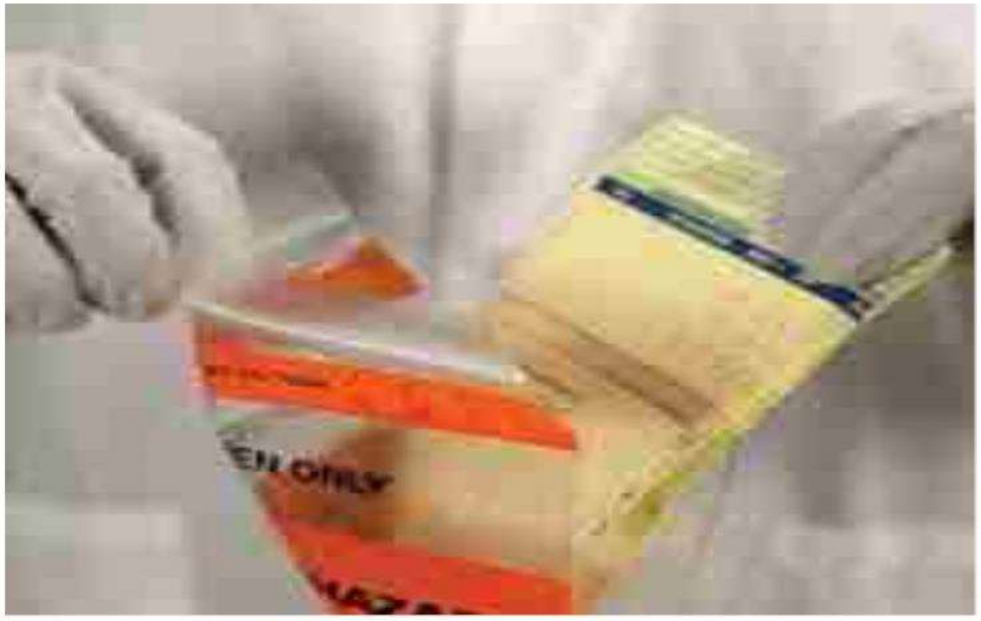
3. Medical waste

- Place biomedical waste in identifiable (color-coded) bags or appropriate containers.
- Securely tie or close bags/containers and remove for appropriate disposal.

Refer to Management of Infectious Waste Policy & Procedure

LABORATORY SPECIMENS :

- Wear gloves before obtaining laboratory specimens.
- Place laboratory specimens in designated containers and seal appropriately.
- Remove gloves and perform hand hygiene once all laboratory specimens are in the appropriate containers.
- Label containers with appropriate patient data.



LABORATORY SPECIMENS :

- Transfer to the laboratory in an upright position as much as possible and as promptly as possible.
- Ensure no leakage of the laboratory specimens.
- Ensure that the requisition has the complete information as this is critical for laboratory analysis and clinical interpretation.

TRANSPORTATION GUIDELINES INCLUDE:

All specimens must be promptly transported to the laboratory, preferably within 2 hours of collection.

Delays or exposure to temperature extremes compromises the test results.

Specimens should be transported in a container designed to ensure survival of suspected agents.

Never refrigerate spinal fluid, genital, eye, or internal ear specimens because these samples may contain

microorganisms sensitive to temperature extremes.

Materials for transport must be labeled properly, packaged, and protected during transport.

A transport medium can be used to preserve the viability of microorganisms in clinical samples (e.g.

Stuart, Amie's, and Carey-Blair transport media).

Use leak-proof specimen containers and transport them in sealable, leak-proof plastic bags.

Never transport syringes with needles attached to the laboratory.

Laboratories must have enforceable criteria for rejection of unsuitable specimens.

See Chapter 2 for additional information.

SPECIMEN FOR CULTURE

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Important considerations regarding specimens and types of cultures

- Specimens for bacterial and fungal culture must be collected prior to initiation of antimicrobial therapy.

This will ensure that organisms present in the specimen are viable for growth in culture.

- A culture result can only accurately depict the infectious process if the specimen is adequate. Laboratory collection manuals provide specific specimen collection directions to ensure an optimal specimen.
- A sufficient quantity of specimen must be submitted to ensure that all of the requested tests can be performed.
- The process of "splitting" a specimen for multiple tests must be done in a way that does not contaminate or compromise the specimen prior to setting up cultures.

ANTIBIOGRAM REPORT IS USEFUL IN SEVERAL WAYS:

1. Clinicians can use the information to guide them in choosing appropriate empirical antimicrobial therapy.

2. The pharmacy department can use the sensitivity results to determine which antimicrobials are effective

and should be readily available for the physicians to prescribe through the hospital formulary of medications.

3. The microbiology department, working with the pharmacy, can determine if the selection of antimicrobials

per class that are tested should be altered to better reflect the antimicrobials recommended for use.

4. The antimicrobial stewardship committee can use the information to evaluate the effectiveness of their

efforts in reducing the overall incidence of resistant organisms isolated from patients. Comparing the current

report with previous reports demonstrates the change in sensitivity patterns for the most frequently

isolated organisms. If organisms are decreasing in sensitivity to the antimicrobials most frequently prescribed,

a change in prescribing practices may help to relieve the antimicrobial selection pressure and

reduce the risk of MDROs.

BLOOD BANK

A blood bank is a center where blood gathered as a result of blood donation is stored and preserved for later use in blood transfusion. The term "blood bank" typically refers to a division of a hospital where the storage of blood product occurs and where proper testing is performed (to reduce the risk of transfusion related adverse events)eg:HIV,HBV…


thank you